KV-2965/29XTR2

MODEL

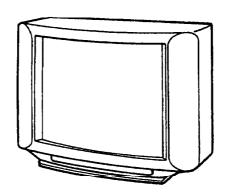
SERVICE MANUAL

KV-2965MT RM-827S

SERVICE MANUAL

Thailand Model

Chassis No. SCC-D29N-A



GP-1A CHASSIS

MODELS OF TH	E SAME SERIES
KV-2965MTJ	
KV-2565MT/2565MTJ/2965MT	
KV-2965MTT	

SPECIFICATIONS

Power requirements
Power consumption

110 - 240V AC, 50/60Hz Indicated on the rear of the TV.

Color system

PAL, PAL60, NTSC_{3.56}, NTSC_{4.43},

SECAM

Audio output 6W+6W speaker Inputs Antenna 75 ohms

VIDEO INPUT jacks : phono jacks

Video: 1Vp-p, 75 ohms Audio: 500 m Vrms, high impedance

S-TERMINAL VIDEO INPUT jack :

4-pin DIN

Outputs

VIDEO OUT jacks:phono jacks

Video: 1Vp-p, 75 ohms

Audio: 500 m Vrms, low impedance

Picture tube Dimensions 72.4 cm (29 inches) 782 \times 577 \times 515 mm (w/h/d)

Weight 44.5 kg

Design and specifications are subject to change without

notice.

Television system and Channel coverage

Television system	М	B/G	1	D/K
Low VHF band	A2-A6	E2-E4		R1-R5
High VHF band	A7-A13	E5-E12		R6-R12
UHF	A14-A79	E21-E69	B21-B68	R21-R60
CATV	A-8-W+84	S01-S03 S1-S41		





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1-4. 1-5. 1-6. 1-7.	Watching the TV Watching the Video Input Adjusting the Picture and Sound Using Convenient Features	·· 5 ·· 6	5-1. 5-2. 5-3. 5-4.	Block Diagrams-1 Block Diagrams-2 Circuit Boards Location Schematic Diagrams and Printed Wiring Boards	. 21
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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ${\mathbb A}$ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

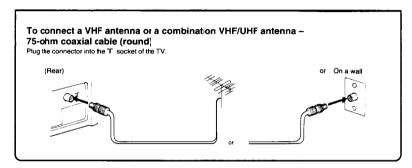
SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

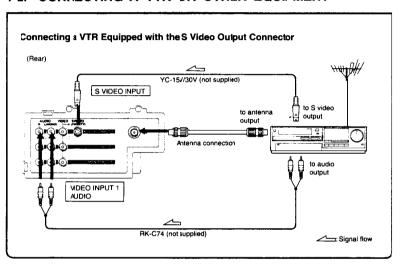
Operating Instructions

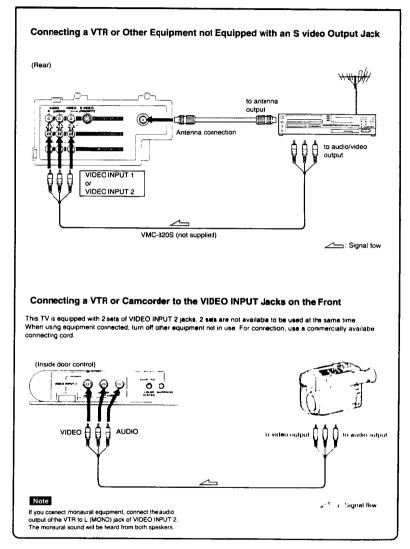
Before operating the TV, please read this manual thoroughly and retain it for future reference.

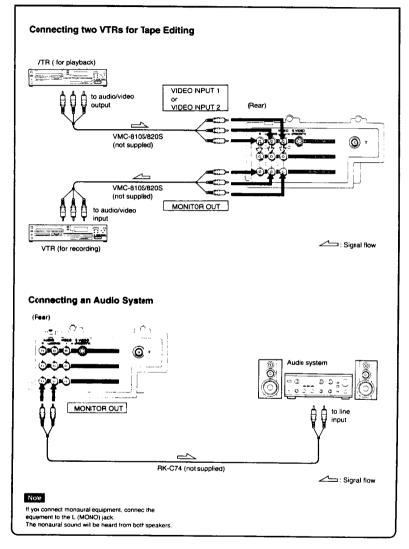
1-1. ANTENNA CONNECTION



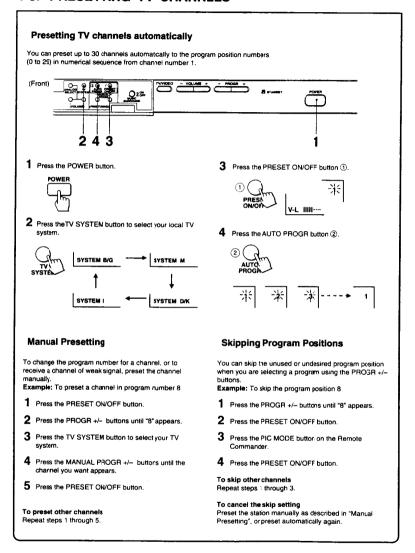
1-2. CONNECTING A VTR OR OTHER EQUIPMENT



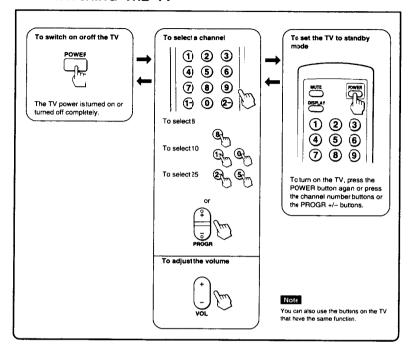




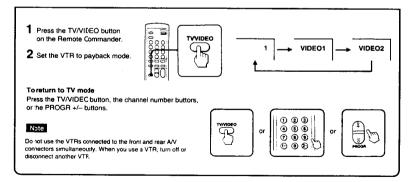
1-3. PRESETTING TV CHANNELS



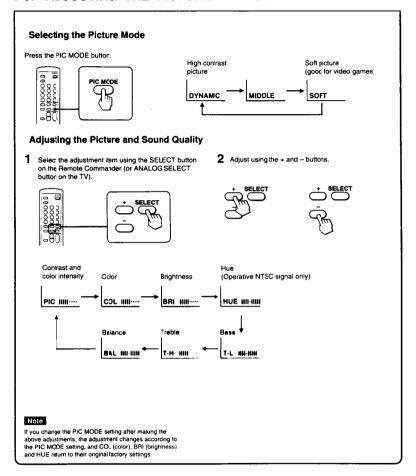
1-4. WATCHING THE TV

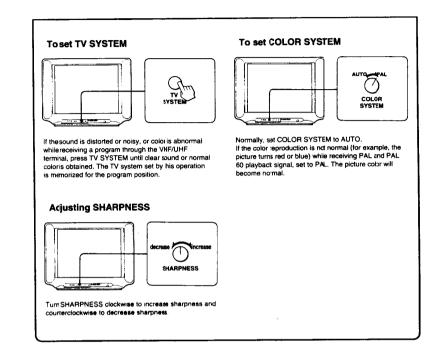


1-5. WATCHING THE VIDEO INPUT

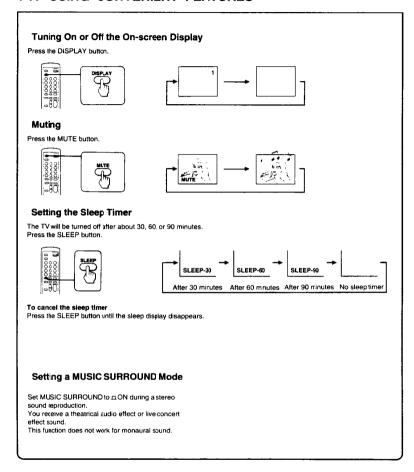


1-6. ADJUSTING THE PICTURE AND SOUND





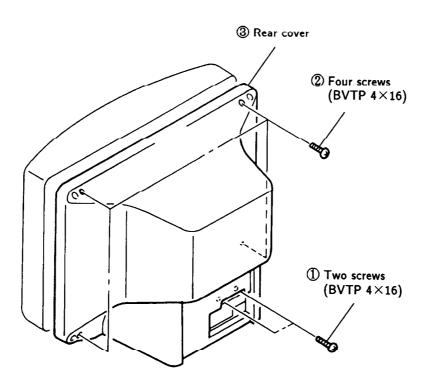
1-7. USING CONVENIENT FEATURES



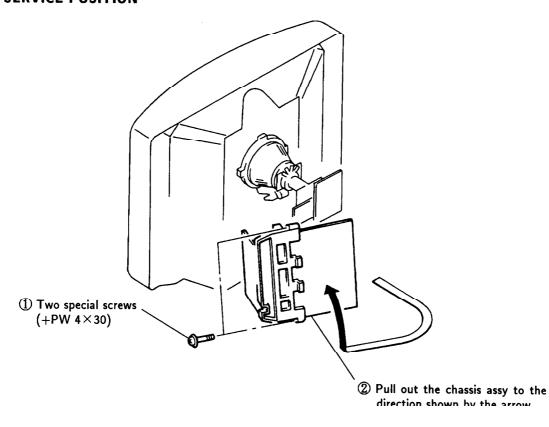
SECTION 2

DISASSEMBLY

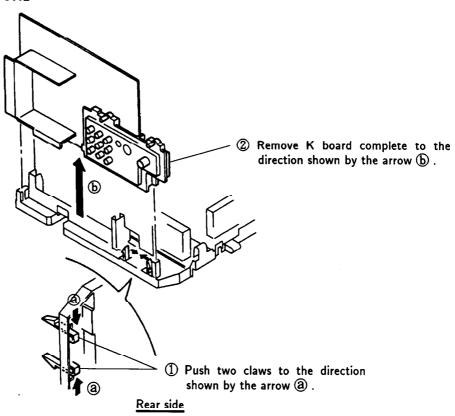
2-1. REAR COVER REMOVAL

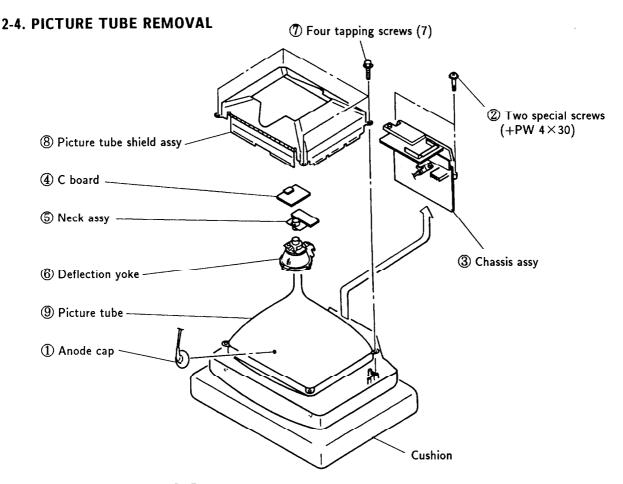


2-2. SERVICE POSITION



2-3. K BOARD REMOVAL





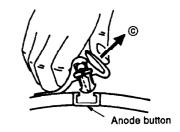
· REMOVAL OF ANODE-CAP

NOTE: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

REMOVING PROCEDURES



① Turn up one side of the rubber cap in ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ③.



When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ©.

· HOW TO HANDLE AN ANODE-CAP

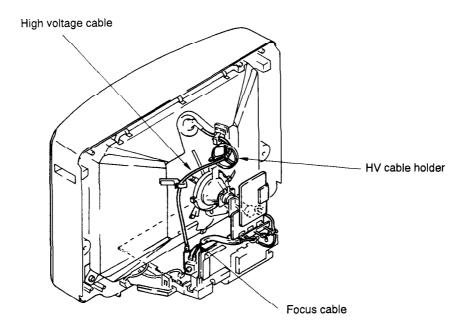
- Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps! A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly! The shatter-hook terminal will stick out or





2-5. HIGH VOLTAGE CABLE, FOCUS CABLE WIRING ARRANGEMENT

After repairing, arrange the high voltage cable and the focus cable as shown in the figure below.



SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The control and switch below should be set as follows unless otherwise noted:

PICTURE control normal BRIGHTNESS control normal

Perform the adjustments in order as follows:

- 1. Beam Landing
- 2. Convergence
- 3. Focus
- 4. White Balance

Note: Test Equipment Required.

- 1. Color-bar Pattern Generator
- 2. Degausser
- 3. Digital multimeter

Preparations:

- Feed in the white pattern signal.
- Before starting degauss the entire screen.

3-1. BEAM LANDING

- Input the white signal with the pattern generator.
 Contrast Bightness normal
- 2. Position neck ass'y as shown in Fig 3-2.
- 3. Set the pattern generator raster signal to red.
- 4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.

(See Fig. 3-1 through 3-3.)

- 5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig. 3-1.)
- 6. Switch the raster signal to blue, then to green and verify the condition.
- When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
- 8. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Fig. 3-4.)

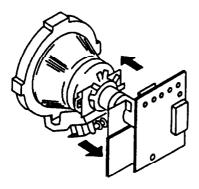
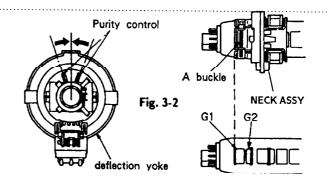
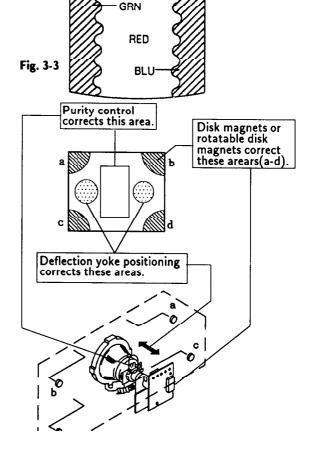


Fig. 3-1



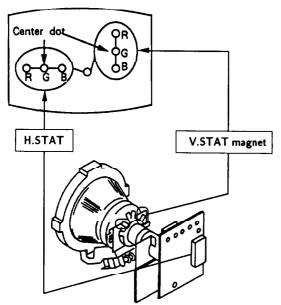


3-2. CONVERGENCE

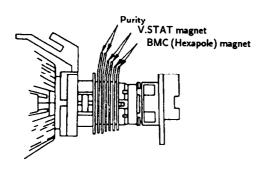
Preparations:

- Before starting perform FOCUS, H.SIZE, V.LIN and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

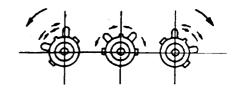
(1) Horizontal and Vertical Static Convergence



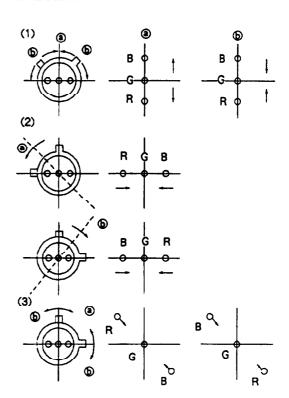
- 1. Adjust H.STAT VR to converge red, green and blue dots in the center of the screen. (Horizontal movement)
- 2. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
- 3. If the red, green and blue dots do not coverge in the center of the screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below. (In this case, H.STAT VR and V.STAT magnet effect each other.)



 Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



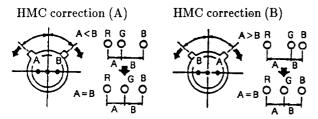
4. When the V.STAT magnet is moved in the direction of arrow (a) and (b) , red, green and blue dots move as shown below.



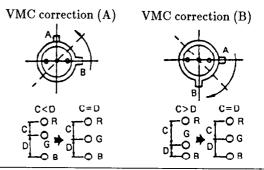
If the blue dot do not Converge with red and green dots, perform following steps.

HMC and VMC correction for BMC (Hexapole)
 Magnet.

 HMC (Horizontal Miss Convergence) correction and motion of the Electron Beam with the BMC Magnet.



 VMC (Vertical Miss Convergence) correction and motion of the Electron Beem with the BMC Magnet.

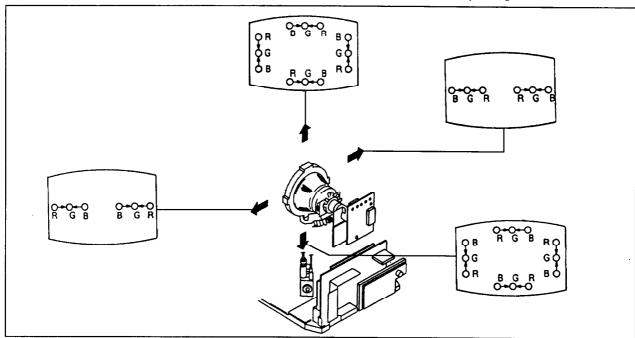


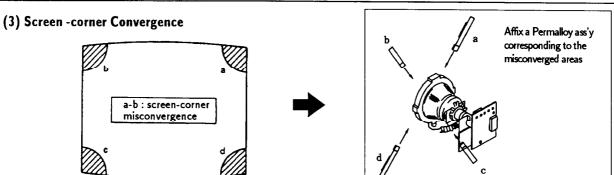
(2) Dynamic Convergence Adjustment

Preparations:

- Before starting perform Horizontal and Vertical static convergence Adjustmet.
- 1. Slightly loosen deflection yoke screw.
- 2. Remove deflection yoke spacers.

- 3. Move the deflection yoke for best convergence as shown below.
- 4. Tighten the deflection yoke screw.
- 5. Install the deflection yoke spacers.





3-3. FOCUS

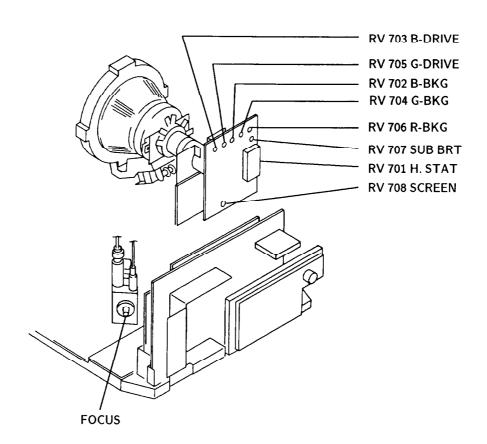
Adjust FOCUS control for best picture.

3-4. SCREEN(G 2) and WHITE BALANCE [SCREEN(G2)]

- 1. Input dots patteren.
- 2. Set the PIC control at minimum and set the BRT control at maximum.
- 3. Confirm the BKG voltage is less than 180 Vdc when turning RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG).
- 4. Note the color when becomes visible first when turning RV 708 (SCRN).

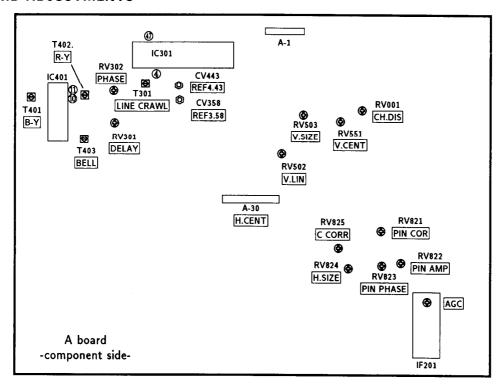
[WHITE BALANCE (Cut off)]

- 1. Input collor bar signl.
- 2. Set the PIC control to minimum and set the BRT control at normal.
- 3. Turn RV 703 (B.DRIVE) and RV 705 (G.DRIVE) fully clockwise.
- 4. Set RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG) to minimum.
- 5. Turn RV 707 (SUB BRT) slowly to obtain a faintly visible blue stripe.
- 6. Switch over all white signal.
- 7. Adjust BKG controls for best white balance.
- 8. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
- 9. Repeat steps 7 and 8.



SECTION 4 CIRCUIT ADJUSTMENT

4-1. A BOARD ADJUSTMENTS



RF AGC ADJUSTMENT (IF201)

- 1. Receive a strong off-air signals.
- 2. Adjust RF AGC VR control so that snow noise and cross-modulation just disappear from the picture.

Channel display POSITION ADJUSTMENT (RV001)

- 1. Set PIC control to maximum.
- 2. Adjust RV001 so that the channel display should be positioned at up-right on the screen.



A · P · C ADJUSTMENT (CV443) (PAL)

- 1. Input the PAL color-bar signal.
- 2. Set the PIC, COL, and BRT controls to normal.
- 3. Short circuit between pin (4) and pin (6) of IC301 with jumper.
- 4. Adjust CV443 for suitable color intensity.
- 5. Remove a jumper.

REF OSC 3.58 ADJUSTMENT (CV358) (NTSC 3.58)

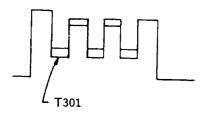
- 1. Short circuit between pin ① and pin ① of IC301 with a jumper.
- 2. Set the PIC, COL and BRT controls to normal.
- 3. Input NTSC 3.58 color-bar signal.
- 4. Adjust CV358 for suitable color intensity.
- 5. Remove the jumper.

ANTI PAL, LINE CRAWLING ADJUSTMENT (RV301,RV302,T301)

- ANTI PAL ADJUSTMENT
- 1. Input PAL color-bar signal.
- 2. Set the PIC, COL and BRT controls to normal.
- 3. Connect the oscilloscope to pin 3 of A-1 connector.
- 4. Adjust RV301 (DELAY) and RV302 (PHASE) to obtain the waveform as shown below.
- LINE CRAWLING ADJUSTMENT

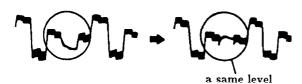


- 1. Input the PAL color-bar signal.
- 2. Set the PIC, COL and BRT controls to normal.
- 3. Connect the oscilloscope to pin 3 of A-1 connector.
- 4. Adjust T301 for minimum line crawling.



DISCRI ADJUSTMENT (T401,T402)

- 1. Input the SECAM color-bar signal.
- 2. Connect the dual-trace oscilloscope to the pin (1) (B-Y) and pin (0) (R-Y) of IC401.
- 3. Adjust T402 (R-Y) and T401 (B-Y) as shown the following figure.

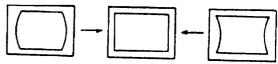


BELL FILTER ADJUSTMENT (T403)

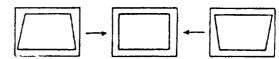
- 1. Input the SECAM color-bar signal.
- 2. Connect the oscilloscope to pin (10) (R-Y) of IC 401.
- 3. Adjust T403 as shown the following figure.



RV822 PIN ANP (PINCUSHION AMPLIFIER)



RV823 PIN PHASE (PINCUSHION PHASE)



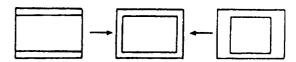
RV821 PIN COR (PINCUSHION CORRECT)



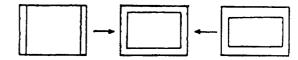
RV825 C.CORR(CORNER CORRECT)



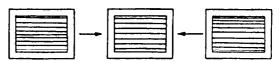
RV824 H.SIZE (HORIZONTAL SIZE)



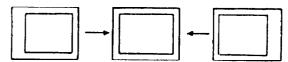
RV503 V.SIZE (VERTICAL SIZE)



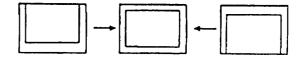
RV502 V.LIN (VERTICAL LINEARITY)



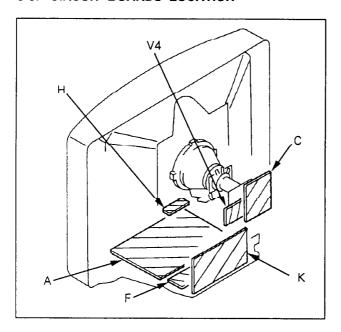
CN550 H.CENT (HORIZONTAL CENTER)



RV551 V.CENT (VERTICAL CENTER)



5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms. $k\Omega = 1000 \Omega$, $M\Omega = 1000 k\Omega$
- Indication of resistance, which does not have one for rating electrical power, is as follows,

Pitch: 5 mm Rating electrical power 1/4 W

- monflammable resistor,
- \triangle : internal component.
- ______: panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Readings are taken with a color-bar signal input.

no mark: with PAL color-bar signal received.

- (): with SECAM color-bar signal received.
- \(\) : with NTSC3.58 color-bar signal received.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (HF)

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE

: RB NONFLAMMABLE CEMENT : RW NONFLAMMABLE WIREWOUND : * ADJUSTMENT RESISTOR

COIL : LF-8L MICRO INDUCTOR

CAPACITOR : TA TANTALUM : PS STYROL

: PP POLYPROPYLENE

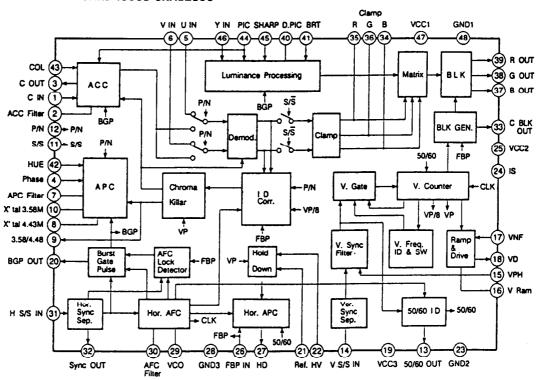
: PT MYLAR
: MPS METALIZED POLYESTER
: MPP METALIZED POLYPROPYLENE

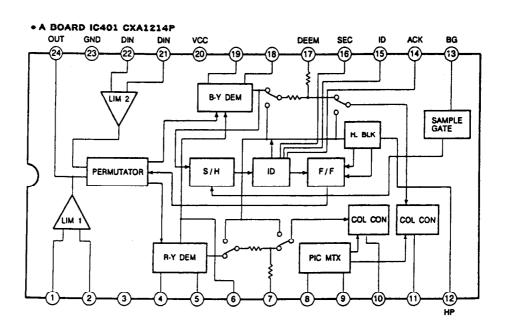
: ALB BIPOLAR

: ALT HIGH TEMPERATURE

: ALR HIGH RIPPLE

• A BOARD IC301 CXA1213S





NOTE:

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

5-5. SEMICONDUCTORS

CXA1213S



CXK5864BSP-10L



KEY-COOSV-F



LA7016



LM393P RC4558P ST24C02AB1 TEA2031A



LM1036N



L78LR05D-MA



MC14052BCP MC14049UBCP TDA8444 µ PD4053BC



MC14066BCP MC33079P



PCA84C840P/054 TC6011N



RC78L09A



RC7812FA



STR-S5741



TA8662N



TDA2009A



TD6710AN



µ PC1498H



μ PC574J



μ PC7893HF



DTA114ES DTC114ES DTC124ES DTC143TS DTC144ES 2SC3327-A



2SA1175-HFE 2SC2785-HFE



2\$A1220A-P 2\$C2611 2\$C2688-LK



2SA1221-L 2SB734-34 2SC2958-L 2SD774-34



2SA1306A-Y 2SC3298B-Y



DTA114ES DTC114ES DTC124ES DTC143TS DTC144ES 2SC3327-A



2\$A1175-HFE 2\$C2785-HFE



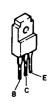
2SA1220A-P 2SC2611 2SC2688-LK



2SA1221-L 2SB734-34 2SC2958-L 2SD774-34



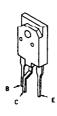
2SA1306A-Y 2SC3298B-Y



2SC2216



2SC4927-01



2SD1408-Y



2SK669



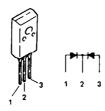
D4SB60L-F



D5LC20U



EGP30GL-6072 ERC06-15S RU-1P RU-3AM



ERD29-08J RU4D\$



EU2Z ES1F-N R2K WG713A



MC911



MC921



MC932



RBV-406H-01



RD10ES-B2 RD10ES-B3 RD13ES-B2 RD13ES-B3 RD39ES-B2 RD5.6ES-B2 RD6.2ES-B2 RD6.8ES-B3 RD7.5ES-B1 RD7.5ES-B3 RD9.1ES-B4 RD9.1ES-B4 RD9.1ES-B3 1SS119



RD10SB1



U05G



SEL1222R-C



SECTION 6 EXPLODED VIEWS

- NOTE:

 Items with no part number and no description are not stocked because they are seldom required for routine service.

 The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark A are critical for safety.

Replace only with part number specified.

6-1. CHASSIS ●: BVTP 3 × 12 7-685-648-79 ■: BVTP 4 × 16 7-685-663-79 (17) (16 BV3 × 25 7-685-152-19 (15) 14 (19) 5 2 (12) (3) 69 [9] **(6)** 8 (10) 7 [11]

The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

6-2. PICTURE TUBE

